FY2008: Regional Integrated Ocean Observing System Development

NATIONAL CROSS-CUTTING IOOS DEVELOPMENT

NOAA continued a merit-based funding process in 2008 to enhance regional ocean observing systems and achieve three long-term outcomes: establishing coordinated regional observing and data management infrastructure, developing applications and products for regional stakeholders, and crafting regional and national data management and communications protocols. In addition to the 20 projects funded in FY2008 that directly support regional IOOS development, the four projects below represent a broad scope of technical support that will service all regions by contributing fundamental research, analysis, and communications that expand the foundation for National IOOS. The total FY2008 investment for these projects is $1,793,150.

Project Title:

Alliance for Coastal Technology (ACT)

Recipient/ Lead Principal Investigator:

University of Maryland Center for Environmental Science – Chesapeake Biological Lab/
Dr. Mario Tamburri (*tamburri@cbl.umces.edu*)

Cost:

Funded: FY 2007 (Year 1) - $1,100,000
FY 2008 (Year 2) - $1,200,000
Proposed (subject to available funds): Year 3 - $4,500,000

Performance:

The Alliance for Coastal Technologies (ACT) is a NOAA-funded partnership of research institutions, resource managers, and private sector companies dedicated to fostering the development and adoption of effective and reliable sensors and platforms. ACT priorities include transitioning emerging technologies to operational use rapidly and effectively; maintaining a dialogue among technology users, developers, and providers; identifying technology needs and novel technologies; documenting technology performance and potential; and providing the Integrated Ocean Observing System (IOOS) with information required for the deployment of reliable and cost-effective networks. To address these priorities, ACT provides three fundamental services: (1) third-party test bed for quantitatively evaluating the performance of new and existing coastal technologies in the laboratory and under diverse environmental conditions, (2) capacity building through technology specific workshops that review the current state of instrumentation, build consensus on future directions, and enhance communications between users and developers, and (3) information clearinghouse through a searchable online database of environmental technologies and community discussion boards.

Schedule:

1. Year 1
    - Support the NOAA National Data Buoy Center and U.S. Army Corps of Engineers in the development of an IOOS Operational Waves Observation Plan

(over)

- Complete the ACT Technology Evaluation of in situ nutrient analyzers and release Demonstration Statements on individual instrument performance
- Initiate Technology Verification of in situ salinity sensors
- Conduct a Needs and Use Assessment of in situ salinity sensors and release report
- Hold a series of technology workshops on topics including in situ salinity sensors, biological platforms for environmental sensors, and hydrocarbon sensors for oil spills

2. Years 1-3
   - Support IOOS Regional Association activities
   - Maintain and expand online, searchable database of environmental technologies and ACT website to provide up-to-date information on activities, products, reports, newsletters, and facilitate information exchange

3. Year 2
   - Complete the Technology Evaluation of in situ salinity sensors and release Verification Statements on individual instrument performance
   - Initiate Technology Demonstrations of in situ pCO_2 sensors for ocean acidification and Harmful Algae detection technologies/methodologies
   - Conduct Needs and Use Assessments for specific technologies
   - Follow-through on prior workshop recommendations, including the development of "Guide To" or “Best Practices” documents for specific technologies
   - Collaborate with CICEET on a workshop addressing technologies and methodologies for detection of harmful algae and their toxins
   - Facilitate and collaborate in the development of a National HF Radar Ocean Current Measurement Plan
   - Support IOOS and collaborate with the Marine Metadata Interoperability (MMI) program efforts in instrument interoperability

4. Year 3
   - Complete the ACT Technology Evaluations of in situ pCO_2 sensors and HAB detection technologies/methodologies, and release Demonstration Statements on individual instrument performance
   - Initiate new Technology Evaluation based in IOOS and community needs
   - Hold a series of technology workshops on topics including High Density Sensors in collaboration with SURA
   - Conduct Needs and Use Assessments for specific technology themes
   - Conduct Technology Training Exercises and develop additional Technology Best Practices documents

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Project Title:

An OPeNDAP/OGC Gateway to Support Regional IOOS Interoperability

Recipient/ Lead Principle Investigator:

OPeNDAP, Inc./Daniel Holloway (*d.holloway@opendap.org*)

Cost:

Funded: FY 2007 (Year 1) - $368,116
FY 2008 (Year 2) - $269,655
Proposed (subject to available funds): Year 3 - $371,812

Performance:

Investigators will build OPeNDAP gateways to two Open Geospatial Consortium (OGC) data protocols – Web Coverage Service (WCS) and Web Feature Service (WFS) or Sensor Observation Service (SOS). Two communities of users will be targeted: the Integrated Ecosystem Assessment (IEA) resource manager and resource managers and data providers associated with several of the regional associations. As with all OPeNDAP software the resulting source code will be made freely available to the community. Specifically, investigators will address needs of NOAA's IEA program, with IEA managers serving as the data users and the Pacific Fisheries Environmental Laboratory IEA archive and regional IOOS archives serving as the data providers. In addition to collaboration with NOAA's IEA program, investigators will also collaborate with participants in two regional associations (CenCOOS and MARCOOS) to provide geographic information systems (GIS) access via OGC services to data products from these associations with particular emphasis on HF radar (CODAR)-derived surface current fields. The gateways to be developed will be documented and made freely available to other regional associations.

Schedule:

1. Year 1
    - Design coverage data interface (using WCS specification)
    - Plan workshop for community feedback on data model issues
    - Design WFS feature data interface (originally proposed using WFS specification, migrating to SOS specification)
    - Develop beta version of the WCS interface, with support for netCDF Climate and Forecast Metadata Conventions (netCDF-CF) Well Known Binaries (WKB) and native IOOS
    - Complete Response Handler for WCS, module for the OPeNDAP Lightweght Front-end Server (OLFS), and Ancillary Information Service (AIS) extensions
    - Write ontology that allows for translation between OPeNDAP/CF and WCS

2. Year 2
    - Formally release the WCS interface
    - Write ontology for translation between OPeNDAP/DAPPER data model and WFS and/or SOS
    - Develop beta version of the WFS (and/or SOS) interface, with support for netCDF-CF: (a) build an extension to the WCS module in the OLFS for WFS (and/or SOS) and (b) develop a XML version of a combined Data Attribute Server (DAS) and Data Descriptor Structure (DDS) (DDX) to Geography Markup Language (GML) Schema module for the Back-End Server (BES)
    - Formally release the WFS and/or SOS interface
    - Provide revised version of WCS gateway
    - Host a server installation and configuration workshop

3. Year 3
    - Add support for Aggregation Response Handler
    - Extend Aggregation Response Handler to work with in situ data collection

- Complete all ontologies
- Provide final version of WCS gateway
- Provide revised version of WFS and/or SOS gateway
- Document ontologies and servers
- Provide final release of WFS and/or SOS gateway

Project Title:

IOOS Observation Registry: Data Network Node Visualization

Recipient/ Lead Principal Investigator:

Monterey Bay Sanctuary Foundation/ Dennis Long *(lighthousegroup@earthlink.net)*

Cost:

Funded: FY 2007 (Year 1) - $194,065
FY 2008 (Year 2) - $117,350

Performance:

The primary objective of this project is to enhance the IOOS Observation Registry infrastructure to better serve regional coastal ocean observing systems (RCOOSs). Work will be performed under the guidance of a technical advisory committee (TAC) composed of coordinators and data managers from regional associations of the IOOS (RAs) and NOAA managers. The role of the TAC will be to advise development of the registry to ensure that the needs of RCOOSs are being met and that the evolution of the registry continues to align with data management standards of IOOS. Enhancements will include the interactive sensor platform map, online observation record builder, and XML harvest feature (XML, or Extensible Markup Language is a flexible way to create common information formats and share both the format and the data via the World Wide Web and elsewhere). The map, which shows the locations of observation platforms inventoried in the registry and is refreshed on a 24-hour interval (http://obsregistry.org/map), will be expanded to provide a finer level of analysis and planning of observation platform locations as well as display of Federal observing assets. The functionality and feature-set of the online observation record builder will be enhanced to better facilitate creation of registry XML records for data providers. The XML harvest feature, which 'ingests' observation record files posted by RCOOS data providers, will be expanded to accommodate Federal records and descriptions of polygon coverage areas (i.e., HF Radar), and will ensure that data flowing into the registry is valid. Other objectives include securing a long-term server platform to host the registry, implementing an off-site back-up system to ensure redundancy, and creating complete technical documentation of the IOOS Observation Registry system.

Schedule:

1. Year 1
   - Host Technical Advisory Committee workshop
   - Secure server platform
   - Complete sensor map changes, including display of Federal observing assets.
   - Complete observation record builder changes
   - Establish system back-up at University of South Florida

2. Year 2
   - Document standards integration options

- Complete XML harvest changes
- Complete enhancements as identified at the Technical Advisory Committee workshop
- Refresh USF back-up system
- Publish technical documentation

Project Title:

Standards Integration of QA/QC Requirements for Oceanographic Observing Systems

Recipient/ Lead Principal Investigator:

Woods Hole Oceanographic Institution/ Janet Fredericks (*jfredericks@whoi.edu*)

Cost:

Funded: FY 2007 (Year 1) - $286,087
FY 2008 (Year 2) - $206,145
Proposed (subject to available funds): Year 3 - $286,437

Performance:

With support from NOAA, a grass roots organization, Quality Assurance in Real Time Oceanographic Data (QARTOD), has met regularly over the past few years, working towards the definition of minimum requirements in quality assurance/quality control (QA/QC) in four focus areas: waves, in situ currents, conductivity and temperature, and dissolved oxygen. Investigators will supplement the ongoing QARTOD activities by demonstrating an implementation of the QARTOD results. For each focus area, investigators propose to define and document the QA/QC requirements, as they relate to Open Geospatial Consortium (OGC) standards, in particular the Sensor Web Enablement initiative. With these requirements, the team will prepare a common data model, providing data dictionaries and defining relevant profiles in SensorML. The data model, dictionaries and profiles will be reviewed by focus area experts, as well as representatives from data centers to confirm that a functional and feasible model has been developed. Once the model is finalized, the development team will design any required methods and generate a tutorial for implementation of the Sensor Web Enablement (SWE) standards for the QA/QC of the focus area (e.g., waves). The team will also provide associated XML-generating tools that evolve for the generation of QA/QC templates for each of the focus areas, facilitating implementation by participating data providers.

Local data providers will implement the QA/QC standards, as defined within this project through the OOSTethys Sensor Observations Service (SOS), maintained by the Gulf of Maine Ocean Observing System (GoMOOS) as part of a relatively broad community activity involving the Southeastern Universities Research Association (SURA) and the Marine Metadata Interoperability (MMI) project. Other OOSTethys participants will be informed of the capabilities through the cookbooks and best practices documents being developed on their site (*www.oostethys.org*), and encouraged to participate through travel support requested in this proposal. The deliverables will be made publicly available through the MMI web site (*www.marinemetadata.org*) and open source software implementations and cookbooks through *www.oostethys.org*.

Schedule:

1. Year 1

- Develop common data model profile for ocean observation data, current observation data, and wave observations data
- Develop/review/test methods, tools and tutorial on implementing wave data profile
- Draft and approve specifications for qualifiers, parameters, and methods of QA/QC for wave observations for use in SensorML data model
- Meet with wave and in situ current experts/researchers
- Announce product to the broader community before March 2009

2. Year 2
   - Draft/approve specifications for qualifiers, parameters, and methods of QA/QC for current observations for use in SensorML data model
   - Develop/review/test methods, tools and tutorial on implementing the current data profile
   - Meet with conductivity, temperature, and depth (CTD) and dissolved oxygen (DO) experts
   - Announce product to the broader community before March 2010

3. Year 3
   - Develop common data model profile for CTD and DO observation data
   - Draft and approve specifications for qualifiers, parameters, and methods of QA/QC for CTD and DO observation data for use in SensorML data model
   - Meet with subset of oceanographers and OOSTethys representatives and select data providers
   - Develop, review, and test methods, tools, and tutorial on implementing CTD and DO profiles
   - Finalize all tutorials and tools
   - Announce product to the broader community before January 2011

NOAA Contacts:

NOAA Coastal Services Center: Mary Culver (*Mary.Culver@noaa.gov*)
NOAA IOOS Program Office: Jennie Lyons (*Jennie.Lyons@noaa.gov*)

FY2008: Regional Integrated Ocean Observing System Development

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ALASKA REGION

The Alaska Region includes the entire state of Alaska. The 2008 implementation award to this region is $1,000,000. The 2008 Regional Association Planning Grant award to this region is $399,976.

Project Title:

Alaska Regional Coastal and Ocean Observing System 2008-2010

Recipient/ Lead Principal Investigator:

Seward Association for the Advancement of Marine Science on behalf of the Alaska Ocean Observing System/
Molly McCammon (*mccammon@aoos.org*)

Cost:

Funded: FY 2008 (Year 1) - $1,000,000
Proposed (subject to available funds): Year 2 - $3,499,999; Year 3 - $3,499,918

Performance:

The Alaska Ocean Observing System (AOOS) is focused on four key issues: climate change and its impacts, sustainability of fisheries and marine ecosystems, mitigation of natural hazards, especially coastal erosion, and safety of marine operations and health of coastal communities. Priorities in FY08 include continuing the development of the Prince William Sound (PWS) Ocean Observing System pilot project that collects observations for use by stakeholders and develops and tests forecast models as a demonstration of an end-to-end observing system in Alaska. The high-resolution wind, wave, and ocean current forecast products provide improved marine safety for recreational and commercial vessel operators and enhance the security to oil tanker traffic in PWS, and will ultimately be expanded to the northern Gulf of Alaska. In addition, AOOS will work to establish its data and web portal as the regional coastal and ocean information system for Alaska, furthering statewide capacity in data management, modeling, and product visualization.

Schedule:

(over)

1. Years 1-2
    - Deploy additional telemetered moorings to improve ocean observations and model forecasts in PWS demonstration project
    - Continue salinity surveys to calibrate ocean forecast model in PWS demonstration project
    - Expand data portal, data acquisition, archiving, access
    - Develop additional data visualization products and tools

2. Year 2
    - Continue development of data management system
    - Test first iteration of PWS forecast models with an Ocean Simulation Experiment (OSE)

Assemble and test Harbornet prototype hardware and data system in Seward Harbor

3. Years 2-3
    - Expand remote sensing capacity
    - Create operational center for regional forecast models
    - Develop and implement key themes and messages, public awareness campaign
    - Engage stakeholders/customers with focus groups and workshops
    - Develop K-12 education guide and products, including educator workshops
    - Analyze past SE model data to complete ocean circulation model in SE Alaska
    - Deploy 2 moorings in SE to validate models
    - Test Harbornet prototype in remote Arctic location
    - Identify and develop suite of forecast models for weather, waves, and currents to expand PWS demo system to Cook Inlet/Kenai coast
    - Deploy additional telemetered weather stations required to improve weather observations and forecasts in Cook Inlet/Kenai coast
    - Deploy additional telemetered moorings required to improve ocean observations in Cook Inlet/Kenai coast
    - Deploy 4 moorings across Amukta Pass
    - Deploy 3 autonomous recorders in eastern Bering Sea
    - Develop nearshore climatology with sea ice and fastice atlas
    - Develop nearshore observation system for ice-free season
    - Continue sea ice radar program in Barrow
    - Add additional sea ice radars
    - Improve sea ice forecasts with sea ice thickness measurements

4. Year 3
    - Hold ocean observing virtual field trip
    - Maintain operational components of PWS observing system
    - Analyze data and incorporate into models to complete ocean circulation models in Bering Sea/Aleutians
    - Analyze data, prepare paper on findings, develop comprehensive ambient noise monitoring program

NOAA Contacts:

NOAA Coastal Services Center: Mary Culver (*Mary.Culver@noaa.gov*)
NOAA IOOS Program Office: Jennie Lyons (*Jennie.Lyons@noaa.gov*)

FY2008: Regional Integrated Ocean Observing System Development

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CARIBBEAN REGION

The Caribbean Region is defined as Puerto Rico, the U.S. Virgin Islands, and the island of Navassa. The 2008 implementation award to this region is $499,999. The 2008 Regional Association Planning Grant award to this region is $399,699.

Project Title:

Implementation of the Caribbean Regional Integrated Coastal Ocean Observing System

Recipient/ Lead Principal Investigator:

University of Puerto Rico at Mayaguez/ Prof. Julio M. Morell (*jmorell@uprm.edu*)

Cost:

Funded: FY 2008 (Year 1) - $499,999
Proposed (subject to available funds): Year 2 - $1,069,393; Year 3 - $992,735

Performance:

This project will implement the initial stages of a Caribbean Integrated Coastal Ocean Observing System (CarICOOS) consistent with national IOOS development plans. Investigators will address stakeholder needs through 1) enhancement of existing and installation of essential in situ observational assets, 2) operational implementation of modeling tools, validated with the above observations, and 3) partnering with NOAA for the production of regionally focused remote sensing products. Achieving DMAC compliant data processing and archiving, and appropriate data and data product dissemination to agencies and stakeholders will assure initial implementation of a user-responsive, operational Caribbean Integrated Coastal Ocean Observing System.

Schedule:

1. Year 1
    - Install 5 hardened coastal meteorological stations, add telemetry capability to existing meteorological stations, make available data streams and graphical products, provide validated meteorological data to NWS-SJ for incorporation into their forecasting data suite

INTEGRATED OCEAN OBSERVING SYSTEM

- Deploy CarICOOS I buoy and Acoustic Doppler Current Profiler (ADCP) off the south coast of the region and make its currents, wave, sea level and meteo data available
- Implement Simulating Waves Nearshore (SWAN) for the northern and southern coasts of the CaRA region
- Make available Intra-Americas Sea Ocean Nowcast/Forecast System graph products at full resolution
- Develop near coastal data assimilation schemes for use in Advanced Circulation (ADCIRC) model for coastal circulation products and validate initial simulations
- Run Regional Ocean Modeling System (ROMS) hindcast simulations and analyze results
- Complete and distribute tropical storm inundation maps
- Deploy temperature and salinity sensors aboard CarICOOS buoy
- Make available NOAA CoastWatch Caribbean and Gulf of Mexico Node turbidity and Sea Surface Temperature products

2. Year 2
   - Include regionally focused remote sensing products in CarICOOS web page
   - Continue delivery of data streams from first CarICOOS buoy
   - Contract construction of CarICOOS II buoy, acquire observational instrumentation (water quality, ADCP)
   - Replace CarICOOS I buoy with CarICOOS II buoy for maintenance
   - After reconditioning, deploy CarICOOS I buoy off the northern coast of the region.
   - Continue consultation regarding products and delivery strategies
   - Continue operational output and publication of wind and wave products
   - Continue development of DMAC and data access products
   - Complete and distribute category one hurricane inundation maps
   - Continue the meteorological station improvement program with WeatherFlow Inc.
   - Develop value-added visualization and distribution systems for tourism and marine commerce industries

3. Years 2 – 3
   - Continue validations for prototype ADCIRC surface tide and coastal circulation modeling using in situ observations
   - Continue validations for HYbrid Coordinate Ocean Model (HYCOM-ROMS) high resolution prototype western Puerto Rico and Virgin Islands grids using in situ observations
   - Continue calibration/validation for remotely sensed protocols

4. Year 3
   - Contract construction of CarICOOS III buoy, acquire observational instrumentation,
   - Recycle mooring off the north coast of the CaRA region with CarICOOS III third buoy
   - Integrate and optimize observational and modeling components through data assimilation
   - Identify WeatherFlow meteo station gap
   - Implement operational ADCIRC surface tide and coastal circulation modeling

- Implement operational HYCOM-ROMS for the high resolution western PR and VI grids
- Fully implement and publish DMAC and web-based tools and products

NOAA Contacts:

NOAA Coastal Services Center: Mary Culver (*Mary.Culver@noaa.gov*)
NOAA IOOS Program Office: Jennie Lyons (*Jennie.Lyons@noaa.gov*)

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CENTRAL AND NORTHERN CALIFORNIA REGION

The Central and Northern California Region runs from the California/Oregon border south to Point Conception. The 2008 implementation award to this region is $1,000,000. The 2008 Regional Association Planning Grant award to this region is $395,763.

Project Title:

CeNCOOS: Long-term monitoring of environmental conditions in support of protected marine area management in central and northern California

Recipient/ Lead Principal Investigator:

Monterey Bay Aquarium Research Institute/Steven R. Ramp (*sramp@mbari.org*)

Cost:

Funded: FY 2008 (Year 1) - $1,000,000
Proposed (subject to available funds): Year 2 - $3,498,788; Year 3 - $3,498,007.

Performance:

The project will build upon the Central and Northern Coastal Ocean Observing System (CeNCOOS) in open and semi-enclosed bays in the region including San Francisco Bay, Monterey Bay, Bodega Bay, Humboldt Bay, and Morro Bay. The focus will be on observing temperature, salinity, sea level, currents, and waves and relating changing conditions to ecosystem and human health. Top priorities of this region include maintaining the pan-regional backbone and developing a Data Management and Communications (DMAC) system to move data seamlessly from the sensor to the product developer, and allow easy access to data and products for all CeNCOOS partners and end users.

Schedule:

1. Year 1
    - Implement CeNCOOS wind product running in real-time 24/7
    - Hire CeNCOOS Chief Product Developer
    - Develop Upwelling Response Index (URI) and Primary Productivity Index (PPI)
    - Hold workshops to design HAB-related products from a combination of remote sensing, pier stations, and in-water assets

2. Years 1-3
    - Operate and maintain water quality stations

- Operate existing autonomous underwater vehicles
- Operate wharf sampling
- Maintain glider and mooring time series
- Begin building the CeNCOOS DMAC, to include web services and overall system engineering
- Produce user-driven data products for CeNCOOS customers as requested

3. Year 2:
   - Refurbish and recalibrate instruments and mooring equipment
   - Hire full-time system programmer to assist with data portal implementation and improvements
   - Develop educational products using CeNCOOS real-time data streams

2. Years 2-3:
   - Add one glider per year to the system to sense subsurface temperature, salinity, chlorophyll fluorescence, and ocean currents
   - Conduct monthly boat-based surveys
   - Run ocean forecast models in real time including the Regional Ocean Modeling System (ROMS) and the Navy Coastal Ocean Model (NCOM)

NOAA Contacts:

NOAA Coastal Services Center: Mary Culver (*Mary.Culver@noaa.gov*)
NOAA IOOS Program Office: Jennie Lyons (*Jennie.Lyons@noaa.gov*)

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GULF OF MEXICO REGION

The Gulf of Mexico Region includes the coastal states from Florida to Texas. In 2008, two implementation awards were provided to Texas A&M University totaling $573,085. The 2008 Regional Association Planning Grant award to this region is $399,986.

Project Title:

Maintenance and Enhancement of the GCOOS Data Portal: Building toward a Regional Operations Center

Recipient/ Lead Principal Investigator:

Texas A&M University/ Dr. Ann Jochens (*ajochens@tamu.edu*)

Cost:

Funded: FY 2008 (Year 1) - $350,000
Proposed (subject to available funds): Year 2 - $819,786; Year 3 - $756,779

Performance:

The overarching goal of this project is to develop an integrated data framework for data streams, quality assurance procedures, and data delivery. This will be achieved through four objectives to: maintain and enhance the data portal beyond 2008, develop and refine a comprehensive data management system, build a pre-operational Regional Operations Center (ROC), and develop educational resources for significant IOOS outreach efforts. This project builds upon current efforts to design and build a centralized data portal for the Gulf of Mexico Coastal Ocean Observing System Regional Association (GCOOS-RA).

Schedule:

1. Year 1
    - Begin planning for Regional Operations Center (ROC)
    - Plan, formalize, and implement Data Management Policy
    - Assemble education and outreach web resources team and design web resources page
    - Assemble kiosk exhibitory team

2. Years 1-3
    - Roll out data portal for general use; begin collecting usage statistics and refine portal
    - Test and refine data portal: conduct internal and external reviews, establish user web wiki, evaluate user satisfaction results

(over)

- Maintain and enhance data portal
- Review and revise Data Management Policy
- Develop and update educational lesson plans

3. Year 2
   - Implement Open Geospatial Consortium Sensor Web Enablement suite of standards specifications for use by all data providers
   - Plan pre-operational ROC elements
   - Develop pre-operational ROC: develop metrics, design and construct ROC
   - Add new data providers and new data types to data portal
   - Install educational kiosks at the J.L. Scott Marine Education Center and the Texas State Aquarium

4. Year 3
   - Add model output to data portal
   - Complete internal testing and external testing of ROC, refine from user feedback, and develop transition plan from pre-operational to operational
   - Install educational kiosks at the Florida Aquarium, Dauphin Island Sea Lab's Estuarium, and Aquarium of the Americas

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Project Title:

Standardization of Local Data Network Nodes in the Gulf of Mexico Coastal Ocean Observing System Regional Association (GCOOS-RA)

Recipient/ Lead Principal Investigator:

Texas A&M University/ Dr. Ann Jochens (*ajochens@tamu.edu*)

Cost:

Funded: FY 2007 (Year 1) – $297,868.
FY 2008 (Year 2) – $223,085
Proposed (subject to available funds): Year 3 – $300,859

Performance:

This project will standardize elements of the near real-time marine data delivery systems of ten major non-federal data providers of the Gulf of Mexico Coastal Ocean Observing System Regional Association (GCOOS-RA). Uniform data delivery systems will be developed that maximize interoperability within the region, between regions, and with the federal backbone to facilitate the production of operational data and model products in support of the regional and national needs. The three specific objectives are to: 1) establish a single common vocabulary for variables served; 2) serve point and vector data via an Open Geospatial Consortium (OGC) compliant Sensor Web Enablement (SWE) framework comprised of Sensor Observation Service and Observation and Measurement standards; and 3) serve satellite data via a OCG Web Coverage Service (WCS) service interface.

Schedule:

1. Year 1
   - Node managers attend one regional DMAC planning and coordination meeting
   - Develop a common data model for and serve near real-time scalar data (e.g., temperature and salinity)

- Satellite provider nodes select which satellite data to serve

2. Years 1-3
   - Establish a single common vocabulary for variables served by region
   - Node IT staff attend two technical meetings per year on DMAC-centric topics e.g., metadata, ontology, Web Services
   - Implement vocabulary changes at each node
   - Each node participates in the IOOS Regional Observation Registry Program

3. Year 2
   - Develop a common data model for and serve near real-time vector data (e.g., current speed and direction)
   - Select/develop method for and serve near real-time satellite data through WCS interface
4. Year 3
   - Node managers attend one regional DMAC planning and coordination meeting
   - Serve archived scalar and vector data via the SWE interface
   - Serve archived satellite data through WCS interface
   - Build Education and Outreach user utility by establishing a working group to train those who will interface with stakeholders on communicating technologies, protocols, and standards

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NOAA Contacts:

NOAA Coastal Services Center: Mary Culver (*Mary.Culver@noaa.gov*)
NOAA IOOS Program Office: Jennie Lyons (*Jennie.Lyons@noaa.gov*)

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GREAT LAKES REGION

The Great Lakes Region includes the coastal zone within the states of New York, Pennsylvania, Ohio, Indiana, Illinois, Wisconsin, Minnesota, and Michigan, bordering on the Great Lakes and St. Lawrence River. The 2008 implementation award to this region is $350,000. The 2008 Regional Association Planning Grant award to this region is $400,000.

Project Title:

Implementation of the Great Lakes Observing System

Recipient/ Lead Principal Investigator:

Great Lakes Observing System/ Roger Gauthier (*gauthier@glc.org*)

Cost:

Funded: FY 2008 (Year 1) - $350,000
Proposed (subject to available funds): Year 2 - $3,500,000; Year 3- $3,500,000

Performance:

The Great Lakes Observing System (GLOS) will focus in the first year on four tasks that support regional observation priorities: 1) implementation of prototype nearshore buoys on lakes Superior, Michigan, Erie and Ontario to collect meteorological, wave information, and vertical lake temperature observations; 2) development of public domain 3D hydrodynamic modeling for the lakes Huron-to-Erie Corridor (HEC), including Lake St. Clair; 3) expansion of the development, user assessments and market analysis of customized integrated harbor specific products (Great Lakes HarborView); and 4) implementation of the Great Lakes Modeling and Assessment Center (GLMAC). More extensive observations, providing system-wide coverage, and related user-defined products will occur in years two and three.

Schedule:

1. Year 1
    - Deploy five prototype buoys to record temperature, meteorology, currents, and water chemistry
    - Develop Huron to Erie Corridor (HEC) hydrodynamic models, including validation, and online products (hourly forecasts of levels, flows and currents) to support drinking water utilities, beach managers, recreational boaters, commercial navigation interests, oil/toxic spill responders and search/rescue operations

(over)

- Conduct detailed assessment of the acceptability of the HarborView pilot products by commercial and recreational boating communities

2. Years 1-3
   - Develop customized HarborView products: web-based nearshore currents, winds, waves, and prevailing weather for all harbors on each of the five Great Lakes
   - Stand up the Great Lakes Modeling and Assessment Center as a clearinghouse for modeling tools and as a virtual center for running pre-operational models
   - Conduct outreach, curriculum development, Data Management and Communication, systems management workshops, and coordination efforts

3. Years 2-3
   - Deploy a standardized set of 14 buoys to collect physical and chemical observations in close proximity to major municipal water intakes and public bathing beaches
   - Produce new products derived from airborne and satellite observations
   - Implement pre-operational assessments for the integrated HEC Waterways Forecasting System
   - Develop high resolution grids for nearshore areas adjacent to major metropolitan water intakes as part of the Great Lakes Coastal Forecasting System

4. Year 3
   - Expand model development to other waterways, including St. Marys and St. Lawrence rivers

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NOAA Contacts:

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NOAA IOOS Program Office: Jennie Lyons (*Jennie.Lyons@noaa.gov*)

FY2008: Regional Integrated Ocean Observing System Development

NOAA continued a merit-based funding process in 2008 to enhance regional ocean observing systems and achieve three long-term outcomes: establishing coordinated regional observing and data management infrastructure, developing applications and products for regional stakeholders, and crafting regional and national data management and communications protocols. In addition, regional associations received planning grant awards designed to assist them in stakeholder engagement, education and outreach, and long-range planning activities.

MID-ATLANTIC REGION

The Mid-Atlantic Region includes the coastal states from Cape Cod to Cape Hatteras. In 2008, implementation funds were provided to two recipients totaling $2,072,200. The 2008 Regional Association Planning Grant award to this region is $400,000.

Project Title:

Phased Deployment and Operations of the Mid-Atlantic Regional Coastal Ocean Observing System (MARCOOS)

Recipient/ Lead Principal Investigator:

Rutgers, the State University of New Jersey/ Dr. Scott Glen (*glenn@marine.rutgers.edu*)

Cost:

Funded: FY 2007 (Year 1) - $1,700,000
FY 2008 (Year 2) - $1,700,000
Proposed (subject to available funds): Year 3 - $3,500,000

Performance:

This project will leverage existing regional observation assets to achieve three primary objectives: observations, modeling, and data management. Investigators will coordinate, sustain, and expand on-going ocean observing and forecasting activities to generate regional-scale data and other products in real-time across the full Mid-Atlantic region and extending in the Bays and Sounds.

The focus in Year 1 was on the observation and forecasting of two-dimensional surface currents to support maritime safety. The work in Years 2 and 3 will continue the progress made in Year 1, furthering observation activities such as current mapping, glider observations, and satellite data forecasts. In addition, the region will focus on statistical and dynamical ocean modeling, and will increase data management and communications (DMAC) and education and outreach efforts.

Schedule:

1. Years 1-2
    - Inventory 26 HF Radar Sites in online database
    - Standardize hardware and software setting throughout HF Radar network
    - Standardize Quality Assurance/Quality Control (QA/QC) radial data settings throughout HF Radar network
    - Implement Short Term Prediction System (STPS) throughout MARCOOS domain

(over)

- Define data streams for assimilation, quality control, error estimate, and DMAC
- Develop real-time data streams for assimilation
- Format Weather flow data in Network Common Data (NetCDF) format
- Bring HF Radar OPeNDAP combiner online
- Share HF Radar and STPS data via OPeNDAP
- Demonstrate MARCOOS-wide glider capability
- Engage NJ coastal community on near-shore currents and waves
- Leverage MACOORA grant to assess 3-D visualization techniques for fisheries
- Conduct background assessment of economic impact of fisheries

2. Years 1-3
   - Operate and update HF Radar system consistent with existing best practices
   - Evaluate other vector algorithms with West Coast sites for HF QA/QC
   - Operate and maintain STPS
   - Support MACOORA DMAC needs, coordinate with national DMAC efforts
   - Operate and maintain local L-Band and X-Band satellite systems
   - Evaluate Drifter assimilation
   - Formulate quantitative skill metrics for dynamical modeling
   - Develop assimilation methodology for real-time ready models

3. Year 2
   - Build network-wide HF Radar diagnostic monitoring
   - Install redundant/high speed communications for HF Radar where possible
   - Perform HF Radar site relocations as identified in the first 6 months
   - Test and evaluate new merging algorithm and vector metrics (HF Radar QA/QC)
   - Bring local satellite data to WEO-GEO (global mapping) data server online for leveraged product development
   - Develop concept of operations, recovery resource list, decision tree for underwater glider operations
   - Implement CTD (a measurement of temperature and depth) database through OPeNDAP

4. Years 2-3
   - Analyze and re-measure antenna patterns for best HF Radar performance
   - Draft best practices document consistent with national HF Radar network
   - Test and evaluate HF Radar antenna pattern sensitivity, revisit settings with hardware group based on tests
   - Develop web-portal for requests to the combiner
   - Share dynamical forecasts via OPeNDAP
   - Incorporate levered products from other satellite sources in MARCOOS
   - Participate in fisheries summit
   - Conduct underwater glider demonstration project
   - Expand education through region with Sea Grant partnerships
   - Leverage NSF grant to build web-based fisheries learning community
   - Conduct initial assessment of economic benefits demonstration impacts

Project Title:
Chesapeake Inundation Prediction System (CIPS): Flood Forecast Prototype for Coastal-Bay-Estuary Resiliency to Storm Surge

Recipient/ Lead Principal Investigator:

Chesapeake Bay Research Consortium/Kevin Sellner (*sellnerk@si.edu*) and Chesapeake Bay Observing System (CBOS)/Elizabeth Smith (*exsmith@odu.edu*)

Cost:
Funded: FY 2007 (Year 1) - $500,000
FY 2008 (Year 2) - $372,200
Proposed (subject to available funds): Year 3 - $500,000

Performance:
The Chesapeake Inundation Prediction System (CIPS) will be developed to improve the accuracy, reliability, and capability of flood forecasts for tropical cyclones and non-tropical wind systems such as nor'easters. Investigators from government, industry and academia will construct, evaluate, and deliver a prototype inundation forecasting system to facilitate emergency management and decision-making in the challenging case of intricate coastlines-semi-enclosed coastal bays and estuaries.

The first major task will expand the technique of ensemble forecasting in the atmospheric domain and translate it to the hydrodynamic and hydrologic domains. To accomplish this, parallel, high-resolution atmospheric forecasts for the region will be produced on an operational schedule. The ensemble will then include hydrodynamics, combining models with the stochastic hydrologic flow to produce high-resolution, operational forecasting in the region. The primary benefits are improved accuracies and quantitative estimates of forecast uncertainties. For the second major task, investigators will exploit a successful prototype visualization, validation, and information-delivery system for emergency managers. Part of this system is a new, rapid system to deploy inundation sensors immediately before storms to obtain direct measurements of water levels. A dynamic outreach program with Emergency Managers (EMs) will integrate and assess the value of this system, not only for the immediate storm response by EMs, but also for their advance planning and decision-making during recovery. The project team will work to address their requirements and deliver the visual inundation information at city-block resolution at a variety of sites for the purposes of immediate storm response and advance planning and decision-making during recovery. CIPS ultimately will provide an end-to-end system that defines users' needs, integrates the subsystems for observation, forecasting, visualization, validation, data and product development, and communicates high-resolution products to EMs, and then to a broad spectrum of users, including the general public.

Schedule:
1. Year 1
    - Assemble data sets for at least three representative storms and run initial forecasts and inundation visualizations for three areas in the Chesapeake Bay: Washington, DC-Alexandria, VA; Norfolk-Virginia Beach, VA; and Dorchester-Talbot Counties, MD.
    - Form emergency manager (EM) user teams in each area to develop and review CIPS products, information delivery techniques, and accompanying economic impact evaluation

- Develop rapid deployment overland sensor network design for one of the two selected overland areas
- Develop an initial automated visualization processing capability to ingest and display hydrodynamic modeling results

2. Year 2
   - Evaluate and refine prototype forecast products and configure models for operational use. Use any new significant (i.e., tropical or extratropical) event that results in major flooding in Year 1 to aid in this evaluation and refinement.
   - Develop and refine visualization and information products
   - Improve methods for tracing how inundation information is used and what benefits it generates
   - Continue to interview EMs for economic impact evaluation

3. Year 3
   - Evaluate the ensemble forecasts and explore how simple data assimilation techniques might improve forecast accuracies by incorporating data from the Chesapeake Bay Observing System (CBOS). Use any new significant (i.e., tropical or extratropical) event in Year 2 that results in major flooding to aid in this refinement.
   - Expand the applications of the 12-hour ensemble hydrodynamic forecast technique (to areas such as Annapolis and Baltimore)
   - Develop visualization tools for most efficient use by forecasters
   - Convey products to emergency managers and other end-users
   - Finalize operational prototype inundation forecast-delivery system and deliver to WFOs.
   - Transfer prototype capability and documentation of end-to-end process to MACOORA and work with other regions to transfer the CIPS capability.
   - Complete performance evaluation and economic impact assessment.
   - If current forecast capability indicates, obtain all relevant observational data and information needed to model one (tropical or extratropical) overland flooding event in each of two overland areas with CIPS and validate the model output. The targeted storm period is March 1, 2010 through November, 2010.

NOAA Contacts:

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FY2008: Regional Integrated Ocean Observing System Development

NOAA continued a merit-based funding process in 2008 to enhance regional ocean observing systems and achieve three long-term outcomes: establishing coordinated regional observing and data management infrastructure, developing applications and products for regional stakeholders, and crafting regional and national data management and communications protocols. In addition, regional associations received planning grant awards designed to assist them in stakeholder engagement, education and outreach, and long-range planning activities.

PACIFIC NORTHWEST REGION

The Pacific Northwest Region includes the coastal states of Washington, Oregon, and northern California. The 2008 implementation award to this region is $1,500,000. The 2008 Regional Association Planning Grant award to this region is $400,000.

Project Title:

Enhancing the Pacific Northwest Regional Coastal Ocean Observing System of the Northwest Association of Networked Ocean Observing Systems (NANOOS)

Recipient/ Lead Principal Investigator:

University of Washington/ Dr. David Martin (*dmartin@apl.washington.edu*)

Cost:

Funded: FY 2007 (Year 1) - $1,500,000
FY 2008 (Year 2) - $1,500,000
Proposed (subject to available funds): Year 3 - $3,500,000

Performance:

This project to develop the Northwest region will be executed in four subcomponents: observing systems, modeling and products, data management and communications (DMAC), and education and outreach. The work will be applied in four observational domains: coastal ocean shelf, coastal ocean surface currents, estuaries, and shorelines. The primary goals of the project are to: 1) maintain existing surface current mapping capabilities and expand with new HF radar sites by extending the current radar array with additional operation, maintenance, and products; 2) expand coverage and range of observations on the coastal ocean shelf in coordination with emerging national programs with fixed buoys and gliders that will provide information on hypoxia/anoxia and harmful algal blooms (HABs); 3) maintain and expand observations in estuaries through improved maintenance and staff support, including partnerships at local, state, and federal levels; and 4) maintain and expand core elements of existing beach and shoreline observing programs in Oregon and Washington.

Schedule:

1. Year 1
    - Survey and obtain permits for three Washington HF radar sites
    - Develop conceptual systems architecture design in compliance with IOOS standards and protocols, network engineering design, and Web interface specifications

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- Hire a full time NANOOS Education and Outreach Specialist; develop education materials for NANOOS focus areas
- Purchase equipment for coastal buoy at Juan de Fuca eddy for HAB warning focus

2. Years 1 - 3
   - Maintain Oregon HF Radar sites
   - Maintain moorings in Puget Sound, Columbia River, Willapa Bay, Gray's Harbor, and South Slough
   - Maintain quarterly topographic profiles and 3-D topographic beach surface mapping

3. Year 2
   - Purchase and install one X-Band port radar system at high priority port
   - Purchase equipment to refurbish Oregon buoy
   - Continue to refine and implement NANOOS DMAC systems architecture across NANOOS domain; user products web interface design initial nodes at UW, Boeing, OHSU, and OSU
   - NANOOS Education and Outreach specialist works with NANOOS administration, E&O Standing Committee, User Products Standing Committee, and other stakeholders
   - Initiate delivery of marine education material via web (Ed-Web); specifically focus on enhancing ongoing Pacific Northwest marine education efforts
   - Continue development of education materials for two NANOOS focus areas according to stakeholder prioritization between fisheries, maritime operations, coastal hazards, and ecosystem impacts; implement training of prioritized target groups throughout the region

4. Year 3
   - Maintain OrCOOS buoy in Newport line for hypoxia/anoxia alerts
   - Maintain quarterly topographic profiles (47 sites) and 3-D topographic beach surface mapping of beach (16 sites), maintain expanded NANOOS pilot efforts at 46 sites
   - Maintain Oregon HF radar sites, and purchase one long range HF system
   - Install three Washington HF radar systems
   - Purchase and install one X-Band port radar system at second priority port
   - Continue development, testing, and use of cross-shore profile change models and probabilistic shoreline change models at OSU
   - Move 24/7 operational modeling center to fully developed status and confirm federal/state organizations for operational transition; focus on oil spill applications
   - Stabilize fully mature NANOOS DMAC systems architecture across NANOOS domain; ensure exportability to other RA efforts and national enterprise
   - Continue work by NANOOS E&O specialist; liaise with stakeholders to assess efficacy of E&O efforts, continue outreach of materials in four NANOOS focus areas
   - Focus on state agencies and others for coastal hazards
   - Expand development of products based on user input
   - Continue training of prioritized target groups throughout the region

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FY2008: Regional Integrated Ocean Observing System Development

NOAA continued a merit-based funding process in 2008 to enhance regional ocean observing systems and achieve three long-term outcomes: establishing coordinated regional observing and data management infrastructure, developing applications and products for regional stakeholders, and crafting regional and national data management and communications protocols. In addition, regional associations received planning grant awards designed to assist them in stakeholder engagement, education and outreach, and long-range planning activities.

NORTHEAST ATLANTIC REGION

The Northeast Atlantic Region includes the coastal states from Maine to Rhode Island. In 2008, implementation funds were provided to three recipients totaling $1,682,350. The 2008 Regional Association Planning Grant award to this region is $400,000.

Project Title:

Development of the Northeast Regional Coastal Ocean Observing System

Recipient/ Lead Principal Investigator:

Woods Hole Oceanographic Institution/ Dr. John Trowbridge (*jtrowbridge@whoi.edu*)

Cost:

Funded: FY 2007 (Year 1) - $1,200,000
FY 2008 (Year 2) - $1,200,000
Proposed (subject to available funds): Year 3 - $3,498,529

Performance:

This project will develop the Northeastern Regional Coastal Ocean Observing System. Regional user requirements identified inundation, harmful algal blooms, water quality, and living marine resources as specific concerns in the Northeastern Region. There are three objectives of this proposal: (1) operate a core of observing elements; (2) establish new observing capabilities for inundation, water quality, and harmful algal bloom, and (3) develop the design for the user-driven core observing system.

Schedule:

1. Year 1
    - Complete development of the Northeast Coastal Ocean Forecast (NECOFS) model that features three core model components (mesoscale weather, waves, and coastal ocean) to provide forecast capacity for marine surface weather, ocean environment, and inundation.
    - Define system requirements; develop performance evaluation criteria; adapt a model suite for observing system simulation experiments (OSSEs)
    - Establish a steering team of educators and scientists to share ideas on education and outreach products

2. Years 1-2

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- Develop data management and communication systems

3. Years 1-3
   - In the Gulf of Maine, maintain five of 11 existing buoys, the University of NH's Coastal Ocean Observing Center (COOA) buoy in Great Bay; and one buoy in the Long Island Sound Coastal Ocean Observing System
   - Maintain HF radar, operational circulation model, surface wave model, and satellite data analysis and dissemination for the Gulf of Maine
   - Extend shipboard surveys associated with the Atlantic Zone Monitoring Program emphasizing nutrient measurements to five new stations

4. Year 2
   - Enhance HAB monitoring in the Bay of Fundy with the addition of extra stations and facilitation of sample analysis and compilation
   - Improve the NECOFS by adding the surface wave forecast and validating the accuracy of forecasts with direct comparison through field data

5. Years 2-3
   - Support existing moorings and buoys in Long Island Sound and Block Island Sound
   - Deploy nutrient sensors on existing buoys and moorings in the Gulf of Maine, Great Bay, Long Island Sound, and Block Island Sound; deploy an in-situ sensor for detecting the presence of harmful algal blooms on an existing platform; deliver products for inundation
   - Execute OSSEs for physical processes to support inundation and for nutrients and HABs. Develop and evaluate alternative designs

6. Year 3
   - Implement data management and communication systems.
   - Integrate Northeast Fisheries Science Center (NEFSC) data streams into the NERACOOS system
   - Develop education products based on real-time and historical data for water quality, harmful algal blooms, living marine resources, and coastal inundation

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Project Title:

Maximizing the Economic Return from Northeast Regional Association of Coastal Ocean Observing Systems (NERACOOS): Prioritized End User Needs and Tools for Tracking Use and Value of Observing System Information

Recipient/ Lead Principal Investigator:

Woods Hole Oceanographic Institution/ Dr. Hauke L. Kite-Powell (*hauke@whoi.edu*)

Cost:

Funded: FY 2007 (Year 1) - $156,181
FY 2008 (Year 2) - $110,150
Proposed (subject to available funds): Year 3 - $158,785

Performance:

The purpose of this project is to: 1) work with prospective end-users of ocean observing system products in the Gulf of Maine/New England area to ensure that information generated by Northeast Regional Association of Coastal Ocean Observing Systems (NERACOOS) effectively addresses end-user needs; and (2) develop and implement a system to track the use of regional observing system information by end-users and document the economic value generated by this information. This will involve three main activities: 1) identify user priorities and information products to address inundation, harmful algal blooms, water quality, and living marine resources management, 2) develop usage tracking and economic assessment tools, and 3) adapt the tools to be used by other regional ocean observing systems.

Schedule:

1. Year 1
   - Develop economic valuation models to estimate the value generated by NERACOOS information; design model and establish data requirements
   - Develop tools to track use of NERACOOS information by end users

2. Years 1-2
   - Conduct meetings for stakeholder user group assessment and feedback

3. Year 2
   - Based on user needs, characterize products and coordinate with NERACOOS
   - Develop economic valuation model and baseline scenarios

4. Years 2-3
   - Develop training materials and provide training on tracking tools
   - Estimate the economic value generated by the use of NERACOOS information; conduct assessment of usage data and benefit

5. Year 3
   - Collect and analyze data on the use of NERACOOS products
   - Provide final report and tools with documentation

Project Title:

A Northeast Benthic Observatory (NEBO) to Support Multi-Species Fisheries and Ecosystem Management

Recipient/ Lead Principal Investigator:

Woods Hole Oceanographic Institution/ Dr. Scott Gallager (*sgallager@whoi.edu*)

Cost:

Funded: FY 2007 (Year 1) - $569,506
FY 2008 (Year 2) - $372,200
Proposed (subject to available funds): Year 3 - $596,156

Performance:

This project will collect and analyze spatially comprehensive high resolution seafloor imagery to quantify key taxa, benthic community structure, species diversity, seafloor habitat characteristics, and

coincident water column properties with repeated measurements on time scales of weeks to years. Data collection will be at locations with high fisheries and conservation value, such as the western Gulf of Maine. Project objectives are to: 1) establish four locations to collect imagery where benthic community structure, the coupling between the water column and benthic community, and system change over time scales of days to years will be quantified; 2) develop tools for integration of fisheries relevant data to segment and classify epi-benthic targets and substrate, and to visualize the results in near real-time; and 3) establish metrics for quantifying change in benthic community structure, organism abundance and size distribution of a variety of taxa relative to substrate composition in relation to water column processes.

Schedule:

1. Year 1
    - Conduct sampling in four sentinel sites
    - Develop tools for automated image processing and classification
    - Build statistical metrics for describing ecosystem change
    - Co-register optical and acoustic data.
    - Serve raw image data over web
    - Integrate data on water column and benthic processes
    - Define data products relevant to end users
    - Begin extracting image information for development of data products

2. Year 2
    - Continue to collect field data at the four sentinel sites

3. Years 2 - 3
    - Produce data products in near real-time during each survey and serve over web

4. Year 3
    - Compile and statistically analyze time series data products
    - Finalize data extraction protocols and process archived data
    - Develop automated segmentation code
    - Conduct societal impact modeling
    - Conduct automated image processing
    - Provide temporal/spatial context for events during study (e.g., storms, climate change)
    - Establish performance metrics and develop a cost-benefit model for the impact of NEBO on commercial fisheries

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NOAA Contacts:

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FY2008: Regional Integrated Ocean Observing System Development

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PACIFIC ISLANDS REGION

The Pacific Islands Region is defined as the State of Hawaii, Commonwealth and Territories of the United States in the Pacific and the Freely Associated States in the Pacific. The 2008 implementation award to this region, of $1,700,000, is for a demonstration project focused on the south shore of Oahu, Hawaii. The 2008 Regional Association Planning Grant award to this region is $397,909.

Project Title:

Developing the Hawaii-Pacific Ocean Observing and Information System

Recipient/ Lead Principal Investigator:

University of Hawaii/ Dr. Brian Taylor (*taylorb@hawaii.edu*)

Cost:

Funded: FY 2007 (Year 1) - $1,700,000
FY 2008 (Year 2) - $1,700,000
Proposed (subject to available funds): Year 3 - $2,698,353

Performance:

The objective of this project is to integrate and expand ocean observing and forecasting first in the Hawaiian Islands, and later among the Pacific Islands as part of a larger Pacific Islands Ocean Observing System (PacIOOS). Investigators will begin with four integrated "catalyst" projects focused initially on waters along the southern shore of Oahu, Hawaii's most populous island. These catalyst projects support one another to enhance community capabilities and respond to the needs of a diverse constituency of stakeholders are (1) coastal ocean-state and forecast; (2) coastal resiliency; (3) automated water quality sensing; and (4) marine ecosystem stewardship. Resultant products will contribute to near-shore and offshore safety, shipping and marine commerce, water quality assessments, marine ecosystem indicators, and marine inundation forecasts.

For the coastal ocean-state and forecast project, investigators will utilize an array of high frequency Doppler radios along with gliders, wave buoys, coastal cameras, and numerical models. This project will monitor, model, and predict channel and near-shore circulation, waves, coastal run-up, and water levels. Observations and model output will feed into a dynamic, web-based coastal ocean atlas providing interpretive products such as most efficient inter-island shipping lanes, hazardous

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conditions at beaches and in harbors, pollutant dispersion, and high water levels in vulnerable communities. The coastal resiliency project products will include: frequently updated maps of specific beach safety conditions; coastal inundation and erosion alerts; and vulnerability projections related to sea-level rise, chronic erosion, and high wave and water level events. The automated water quality sensing project efforts will expand and implement modifications of existing coastal water quality monitoring. The proposed system, when combined with circulation models, will provide early warning of impending water quality problems, improve prediction of affected areas, and decrease response time for mitigation efforts. The marine ecosystem stewardship project team will focus on expanding existing cetacean monitoring arrays. Stewardship products will include fishing and marine mammal forecasts to help interpret impacts of long-term climate change on living marine resources.

Schedule:

1. Year 1
    - Deploy one glider mission.
    - Bring key data and products on-line (glider subsurface temp/salinity, sea level heights/trends, wave state, NLOM/NCOM ocean state products, autonomous underwater vehicle (AUV) survey products, surface winds)
    - Deploy observation equipment (Koko Head and Barbers Point Coastal Radars, nearshore water quality stations, directional wave buoys, Ecological Acoustic Recorders (EAR) at Kilo Nau, yellowfin tuna transmitters)
    - Deploy AUV surveys and event surveys
    - Conduct topographic LIDAR surveys
    - Operate circulation models (RSM/MSM atmospheric model, Regional Ocean Modeling System (ROMS) model, regional wave model)
    - Develop software for real time detection of cetacean sounds
    - Develop database and web system
    - Deploy beach cameras and near-shore sensor packages

2. Year 2
    - Deploy 1-2 gliders continuously
    - Deploy additional observation equipment (Barbers Point water level/seiche stations, deep EAR sensor, Waikiki beach cameras)
    - Operate priority models (weather research and forecast (WRF), atmospheric model, Hybrid Coordinate Ocean Model/Pacific Ocean Model (HYCOM/POM), Oahu south shore model, ecosystem model)
    - Continue development of database and web system
    - Bring additional key products on-line (radar surface current maps, water quality products, inundation products, HYCOM/POM products)

3. Year 3
    - Bring additional products/data on-line (marine mammal occurrence, biological activity, vessel traffic, inundation products, run-up products)
    - Continue development of database and web system
    - Assimilate data into WRF and ROMS models

NOAA Contacts:

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NOAA IOOS Program Office: Jennie Lyons (*Jennie.Lyons@noaa.gov*)

FY2008: Regional Integrated Ocean Observing System Development

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SOUTHERN CALIFORNIA REGION

The Southern California Region runs south from Point Conception to the Mexico border. In 2008, three implementation awards were provided to recipients at the University of California at San Diego, Scripps Institution of Oceanography totaling $853,785. The 2008 Regional Association Planning Grant award to this region is $353,785. Scripps serves as the fiscal agent for the Southern California Coastal Ocean Observing System.

Project Title:

Implementation of Regional Integrated Ocean Observing System: Southern California Regional Coastal Ocean Observing System (SCCOOS)

Recipient/ Lead Principal Investigator:

University of California at San Diego, Scripps Institution of Oceanography/
Dr. Eric Terrill (*eterrill@ucsd.edu*)

Cost:

Funded: FY 2008 (Year 1) - $500,000
Proposed (subject to available funds): Year 2 - $3,157,438

Performance:

This project will continue to expand activities that have been identified as priorities by the SCCOOS stakeholder community. These include supporting the southern California beach water quality management community including issues related to Harmful Algal Blooms (HABs), maintaining area-wide ocean assessment to identify secular trends in the environment and their relationship to ecosystem variability, supporting operational users such as search and rescue, oil spill, and marine safety, and managing and distributing ocean information of public interest. In year one, this project will focus on establishing a HAB surveillance program, maintaining forecasts and nowcasts of ocean and atmospheric conditions, continued acquisition of nearshore larval and fish counts to complement California Department of fish and game management of fisheries, and the generation of a coastal climatology to aid management decisions as they relate to climate change and ecosystem variability. In year two, the project will include a new data management focus, in addition to expanded observation and modeling efforts.

Schedule:

1. Years 1-2

(over)

- Conduct nearshore egg and larval surveys for in-shore California Cooperative Oceanic Fisheries Investigations (CALCOFI) stations
- Conduct HAB surveillance shoreline sampling
- Develop climate relevant indices for ecosystem assessment
- Operate a real-time operational atmospheric model at 1-km
- Maintain and operate Regional Ocean Modeling System (ROMS) at 1-km over southern California Bight

2. Year 2
   - Maintain and operate auto-shore stations for shoreline water quality
   - Implement underway CTD (a measurement of temperature and depth) – San Pedro to Catalina
   - Provide real-time and historical trends of surfzone wave heights and currents bightwide
   - Maintain existing lines of long-line glider tracks at northern and southern SCCOOS boundaries
   - Maintain and operate HF Radar
   - Conduct discharge plume surveys
   - Implement in-shore glider track to observe HABs
   - Implement Santa Monica Bay Mooring and HAB speciation technology
   - Maintain SCCOOS data feeds, data delivery, IOOS DMAC, and the SCCOOS website
   - Develop and run training workshops
   - Develop and run a finer resolution ROMS, Santa Monica and San Pedro bays, and San Diego coast
   - Develop retrospective bight-scale hindcast and assimilation technique development

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Project Title:

Long Beach/Los Angeles Harbor IOOS Demonstration Project
http://www.sccoos.org/data/harbors/lalb/fullscreen.php

Recipient/ Lead Principal Investigator:

University of California at San Diego, Scripps Institution of Oceanography/
Julianna Thomas (*jot@splash.ucsd.edu*)

Cost:

Funded: This project was selected in FY07 and all three project years were fully funded with FY07 dollars at a total project cost of $99,999. FY08 is the second year of the project.

Performance:

This project will integrate regional assets by leveraging existing observations, models, and data management to develop products that contribute to the safety and efficiency of maritime transportation. The proposed customized website for Long Beach/Los Angeles Harbor entrance is designed to provide critical marine conditions necessary for the safe passage inbound and outbound from Long Beach/Los Angeles Harbor.

Present infrastructure and methodology is used to collect, analyze, and disseminate wave and surface currents data in near real-time. The following parameters will be integrated in the web display: wave measurements, model wave nowcasts and forecasts, sea surface temperature (in-situ and remote), HF radar-derived surface currents, tides, and modeled winds. The final website design will include information windows activated on the display map for areas of interest as selected by the stakeholders. The intent is that maritime traffic users will access near real-time data for immediate transit decisions or forecast information for planning purposes.

Schedule:

1. Year 1
   - Aggregate existing relevant assets for website products
   - Develop Federal Geographic Data Committee (FGDC) compliant XML metadata and use a common data model

2. Years 1-3
   - Meet with Long Beach/Los Angeles Harbor stakeholders at project start, mid-point, and end of year to obtain input and feedback
   - Refine website development
   - Transmit data to NOAA National Data Buoy Center

3. Year 2
   - Hold tutorial in Long Beach/Los Angeles area to train stakeholders in the most efficient and productive use of the website, and assure the optimum use of site as a decision-support tool
   - Begin meeting with stakeholders for a second harbor

4. Year 3
   - Meet with both harbor stakeholders to evaluate the applicability and usefulness of the product

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Project Title:

Using Ocean Data Assimilation to Incorporate Environmental Variability into Sardine and Squid Assessments

Recipient/ Lead Principal Investigator:

University of California at San Diego, Scripps Institute of Oceanography/
Dr. Arthur J. Miller (*ajmiller@ucsd.edu*)

Cost:

Funded: FY 2007 (Year 1) - $474,559
FY 2008 (Year 2) - $353,785
Proposed (subject to available funds): Year 3 - $464,705

Performance:

This project will study the influence of physical oceanography on the populations of sardine and squid by selecting key El Niño and La Niña time periods (which represent environmental extremes) for intensive analysis, comparison, and contrast to typical conditions. The project will include

extensive analysis of the various IOOS data using sophisticated ocean data assimilation tools. The overall goals are to develop a coupled ecological and hydrologic model for assessing and predicting the physical oceanographic influences on sardine and squid stocks using both IOOS and federal and state fisheries data.

The primary steps in accomplishing this project are: 1) study the physical oceanographic state during the key years using sophisticated ocean data assimilation tools of the Regional Ocean Modeling System (ROMS); 2) relate the biological observations to the time-evolving physical state using statistical models; and 3) evaluate the predictive capability of the physical-biological system using independent years of data. The end goal is to deliver the system to stock assessment managers through the Southwest Fisheries Science Center. The resulting forecast will be presented to the sardine and squid stock managers and scientists for consideration in the catch quotas for these species.

Schedule:

1. Year 1
    - Assemble physical oceanographic datasets for assimilation during key years
    - Test forward run in ocean model domain for first key time period
    - Begin inverse method data assimilation for first key time period

2. Years 1-2
    - Assemble biological datasets

3. Years 1-3
    - Present initial results at scientific meetings and workshops, discuss results with the Pacific Marine Fisheries Management Council and the Coastal Pelagic Species Management Team
    - Analyze zooplankton samples
    - Analyze squid egg bed habitats
    - Conduct diet and plankton investigation in the laboratory and at sea
    - Examine sardine feeding morphology and diet
    - Investigate physical factors that influence abundance/distribution of suitable planktonic prey

4. Year 2
    - Complete inverse method data assimilation for first key time period
    - Test forward run in ocean model domain for second key time period

5. Years 2-3
    - Use diagnostic tools to analyze ocean model fits for some physical processes affecting biology

6. Year 3
    - Begin and complete inverse method data assimilation for second key time period
    - Integrate sardine prey production with physical ocean model fits
    - Examine model ability to accurately predict temporal and spatial variation in sardine recruitment

NOAA Contacts:

NOAA Coastal Services Center: Mary Culver (*Mary.Culver@noaa.gov*)
NOAA IOOS Program Office: Jennie Lyons (*Jennie.Lyons@noaa.gov*)

FY2008: Regional Integrated Ocean Observing System Development

NOAA continued a merit-based funding process in 2008 to enhance regional ocean observing systems and achieve three long-term outcomes: establishing coordinated regional observing and data management infrastructure, developing applications and products for regional stakeholders, and crafting regional and national data management and communications protocols. In addition, regional associations received planning grant awards designed to assist them in stakeholder engagement, education and outreach, and long-range planning activities.

SOUTHEAST ATLANTIC REGION

The Southeast Atlantic Region includes the coastal states from North Carolina to Florida. In 2008, implementation funds were provided to five recipients totaling $2,556,625. The 2008 Regional Association Planning Grant award to this region is $384,535.

Project Title:

Implementation of Regional Integrated Ocean Observing Systems: Support of RCOOS Development in SECOORA

Recipient/ Lead Principal Investigator:

S.C. Sea Grant Consortium, Dr. Rick DeVoe *(Rick.Devoe@scseagrant.org)*

Co-Principal Investigator:

University of North Carolina at Chapel Hill, Dr. Harvey E. Siem (Harvey_seim@unc.edu)

Cost:

Funded: FY 2008 (Year 1) - $400,000
Proposed (subject to available funds): Year 2 - $3,459,700; Year 3 - $3,476,595

Performance:

This project will consolidate Coastal Ocean Observing System (COOS) assets and products in the Carolinas with those in Georgia and Florida to establish a user-driven observing system that spans the entire SECOORA footprint. The foundation of the SECOORA RCOOS will build initially upon six primary elements included in this proposal: 1) Maintenance and development of existing observing assets and consolidation of existing sub-regional observing systems, 2) Construction of an integrated and embedded modeling system, 3) Development of ecosystems models targeted at predicting the characteristics of regionally important fish stocks, 4) Establishment of a data management system designed to disseminate rapid, high quality products, 5) Establishment of a systems engineering based structure to the observing system architecture that enables the seamless interoperability, and 6) Integration of an end-user community into the fabric of SECOORA to ensure responsiveness to regional needs.

Schedule:

1. Year 1
    - Maintain operations and data flow from four HF Radar sites

(over)

- Improve guidance and processes for data providers
- Complete the redesign of the SECOORA website that will allow for the incorporation of existing data streams and format them as prescribed by target user groups, and complete the development of basic tailored interfaces that support specific communities of interest

2. Years 1-3
    - Work with membership of SECOORA and its Stakeholders Advisory Council to prioritize elements of RCOOS growth

3. Year 2
    - Establish accuracies of observed and simulated data (skill assessment) for all available physical components through appropriate comparisons and intercomparisons
    - Implement locally-relevant ecosystem models that will quantify the role of abiotic and biotic effects on the growth, survival, and recruitment of target species in the region
    - Assess current operational processes

4. Years 2-3
    - Sustain and enhance observing assets in the SECOORA domain, including buoys, offshore towers and coastal stations
    - Maintain HF Radar measurement systems and provide data in near-real time
    - Sustain and enhance nowcast/forecast modeling systems
    - Evaluate an existing regional-scale model for the SECOORA domain
    - Coordinate with the U.S. Coast Guard (USCG) and MACOORA to enable surface current field input to the USCG Search and Rescue Operations application
    - Establish best current form of open boundary conditions and coupling of wave, atmospheric, and circulation models
    - Enhance/refine tailored interfaces to include aggregated near-real-time delayed mode, and model output data that supports the thematic priorities of fisheries/ecosystem management, waves, and search and rescue
    - Develop, test, and deploy a range of applications
    - Integrate national DMAC advances with SECOORA data management activities and ensure interoperability with other SE COOS efforts
    - Enable access to archival information
    - Ensure ecosystem and fisheries modeling efforts are coordinated with the stakeholder groups they are serving
    - Ensure circulation modeling efforts are coordinated with USCG, the Gulf Coast Ocean Observing System, and the Mid-Atlantic Coastal Ocean Observing Regional Association
    - Regularly meet with other Regional Associations to share lessons learned and outreach initiatives
    - Develop standards-based curriculum based on fisheries/ecosystem management, waves, coastal hazards, and search and rescue activities

5. Year 3
    - Evaluate existing linked Ecosystem Modeling with Circulation Modeling efforts at ecologically relevant space and time scales to characterize the transport of target species from offshore spawning locations to nursery areas

- Develop nowcasting capabilities of oceanographic and ecosystem properties to provide relevant information for use in the South-East Data, Assessment, and Review (SEDAR) recruitment forecast process
- Define desired future state of the RCOOS, identify gaps and cost/schedule drivers
- Develop methodologies for the RA design and implementation that maximizes use of existing assets and interoperability, and ensures cost-effectiveness and long-term sustainability

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Project Title:

Integration of Coastal Observations and Assets in the Carolinas in Support of Regional Coastal Ocean Observation System Development in the Southeast Atlantic

Recipient/ Lead Principal Investigator:

University of North Carolina Wilmington/ Dr. Lynn Leonard (*lynnl@uncw.edu*)

Cost:

Funded: FY 2007 (Year 1) - $1,200,000
FY 2008 (Year 2) - $1,200,000
Proposed (subject to available funds): Year 3 - $3,001,575

Performance:

This project will focus on the integration of existing assets and observations specific to the development of wave, water quality, and public health safety products in the Carolinas coastal region. Investigators will support and use a subset of existing platforms currently operated by academic and federal entities and eventually install two new wind, wave and current monitoring stations in the North Carolina Pamlico and Albemarle Sounds and two additional coastal wave stations off the outer banks. Initially, the work will focus on core variables and observations needed to support weather and rip current forecasting as well as US Army Corps of Engineers process modeling. Investigators will use existing environmental data and adapt selected NOAA National Estuarine Research Reserves non-real time stations to real-time in support of environmental modeling applications and development of estuarine water quality standards. Since most of the data collection infrastructure is in place, this project is immediately executable and creates a test bed to evaluate observing system design criteria, such as the ability of a system to directly support specific user-driven application needs, as put forth by the Southeast Coastal Ocean Observing Regional Association.

Schedule:

1. Years 1-3
   - Maintain inner-shelf and nearshore monitoring stations in North and South Carolina coastal waters
   - Provide operational data streams for existing USACE stations
   - Develop prototype Surf Conditions Nowcasting System (SCNS)

2. Year 2
   - Develop prototype validations module linkage to Regional Coastal Ocean Observing System (RCOOS) archive
   - Develop prototype interface with the USACE Model Evaluation and diagnostics System (MEDS)

- Migrate website components to appropriate (e.g.SECOORA) platform

3. Years 2-3
   - Upgrade NERR stations in North and South Carolina to real time
   - Build a comprehensive database including archived data from previous NOAA COTS programs in the Carolinas, USACE, and various water quality progragrams
   - Optimize and ensure access to near-real-time, delayed mode, and model output data via web browser
   - Develop rigorous procedures for assessment of real-time data and relay information to users
   - Integrate standards and processes with other SECOORA data management activities
   - Assess system function
   - Conduct public outreach and stakeholder engagement for both the Carolinas RCOOS and SECOORA

4. Year 3
   - Assess, assimilate and disseminate water quality information in North and South Carolina
   - Upgrade systems that have surpassed expected lifecycle
   - Demonstrate RCOOS-wide wave/current validation
   - Deliver semi-operational RCOOS-wide validation module
   - Evaluate Simulated WAve NearShore (SWAN) model as an approach to forecast wave conditions in Long Bay
   - Document procedures for real-time data assessment and relay information to users
   - Verify model improvement.
   - Develop standards-based visualization tools for SECOORA.

Project Title:

A Regional Storm Surge and Inundation Model Test Bed for the Southeast Coastal Ocean Observing System Regional Association

Recipient/ Lead Principal Investigator:

University of Florida/ Dr. Peter Sheng (*pete@coastal.ufl.edu*)

Cost:

Funded: FY 2007 (Year 1) - $500,000
FY 2008 (Year 2) - $372,200
Proposed (subject to available funds): Year 3 - $500,000

Performance:

Using a community-based approach and working with the National Weather Service, Federal Emergency Management Agency and state and county departments of Emergency Management, this project will conduct a comprehensive validation and comparative study of four leading storm surge and inundation models developed by the academic community. The goals of this project are to enhance the storm surge and inundation modeling capabilities, establish common standards for storm surge and inundation modeling, bridge the gap between the leading academic storm surge modelers

and the operational agencies, and potentially improve maps of inundation, e.g. the SLOSH surge atlas and Flood Insurance Rate Maps (FIRMs), for enhanced emergency planning and management.

Schedule:

1. Year 1
    - Establish a panel of experts and users from to produce a set of objective protocols and criteria for model-data and model-model comparisons.
    - Produce an updated inventory of storm surge, wave, and inundation modeling activities.
    - Identify the major products (e.g., SLOSH surge atlas, FIRMs, and inundation maps) produced by NWS and FEMA and used by Emergency Managers and determine possible enhancements.
    - Develop a common data framework, and design realistic test problems with archived field and analytic data, for model-data comparison and inter-comparison of storm surge and inundation models while leveraging current advances in DMAC and Marine Metadata Interoperability (MMI).
    - Develop a set of common model quality and performance standards for all surge, wave, and inundation models to be used in the region.
    - Select past hurricanes for model validation and inter-comparison, gather and store data in a Storm Archive, as part of a virtual computing "Grid" that will leverage and build upon a Virtual Grid.

2. Year 2
    - Conduct simulations of selected hurricanes.
    - Compare model results to data and with each other in terms of a number of model variables and skill assessment methods and to determine if these models meet existing federal standards.
    - Determine the sensitivity of models' skills to model attributes, coefficients, and input data
    - Using the four storm surge models and the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model, produce and compare a surge atlas for a coastal region, following the method used to produce SLOSH surge atlas.
    - Determine the sensitivity of a surge atlas to various model attributes and input data and improve the storm surge and inundation models if necessary.
    - Working with NWS and Emergency Managers, recommend ways to potentially enhance the SLOSH surge atlas or produce ensemble surge atlas.

3. Years 2-3
    - Maintain and enhance Virtual Grid

4. Year 3
    - Conduct ensemble model runs for a coastal region in FL and NC, following the FEMA method for producing FIRMs for a 100-yr storm.
    - Provide the results from the four storm surge models to FEMA and produce FIRMs for inter-comparison and comparison with the FEMA FIRM.
    - Identify the sensitivity of FIRMs to various model features and input data.
    - Working with FEMA, identify ways to enhance their FIRMs.

- Using the four models, produce real-time inundation maps for a coastal region during a hurricane, and compare them with the corresponding SLOSH surge atlas.
- Using the model comparison results, develop "best practice" guidelines for optimal application of storm surge models.

Project Title:

A Prototype Operational Modeling System for Waves, Coastal Currents, Inundation and Hydrologic Flooding for Eastern North Carolina

Recipient/ Lead Principal Investigator:

University of North Carolina at Chapel Hill/ Dr. Rick Luettich (*rick_luettich@unc.edu*)

Cost:

Funded: FY 2007 (Year 1) - $499,991
FY 2008 (Year 2) - $371,950
Proposed (subject to available funds): Year 3 - $499,924

Performance:

This project will develop a modular, integrated modeling system that provides 24/7/365 forecasts of waves, storm surge, inundation, coastal circulation, and hydrologic runoff for Eastern North Carolina, a region highly susceptible to catastrophic impacts of severe coastal weather. Resultant data and products will be developed using ensemble-based procedures and routinely evaluated against extensive existing in-situ observations. The overall goal is to demonstrate the relevance to regional stakeholders of an operational watershed-to-coastal ocean modeling system that provides information on offshore and nearshore wave conditions, information to assess rip current threats, regional wave and current conditions in high traffic areas such as tidal inlets, nearshore currents for search and rescue operations, and inundation data associated with coastal storm surge and hydrologic runoff. Information will be transmitted in compatible formats to three regional National Weather Service Forecast Offices the to the U.S. Coast Guard (USCG) to be applied during moderate conditions and severe storms for use in marine forecasts, search and rescue operations, decision-making by emergency managers, and the U.S. Army Corps of Engineers for evaluating near shore sediment transport budgets.

Schedule:

1. Year 1
   - Develop and refine model domains and associated databases
   - Implement quasi-operational, 24/7/365 high-resolution coupled wave-current model and develop data streams to distribute output to WFOs and to USCG
   - Ingest regional IOOS observational data streams and develop skill assessment scheme
   - Evaluate strategies for establishing boundary conditions at the dynamic interface between the hydrologic and coastal models; determine the type and spatial/temporal frequency of shared information
   - Develop initial project web site

2. Years 1-3

- Conduct annual survey/workshop with users to document and discuss feedback on product value and provide tech transfer

3. Year 2
   - Develop storm suite to be used for ensemble modeling of tropical cyclones.
   - Implement methodology to blend 24/7/365 model runs with event-based tropical cyclone ensemble forcing
   - Evaluate model skill including development of methodology for directional wave spectra.
   - Implement initial coupling of hydrologic and coastal models in quasi-operational job stream

3. Year 3:
   - Expand web site based on user feedback and to provide OPeNDAP based data products
   - Pursue distribution of data to alternate partners
   - Evaluate and pursue coupled system enhancements based on user feedback
   - Validate coupled modeling system against historical data (e.g., Hurricane Floyd)
   - Continue evaluation of system wide model skill
   - Develop classroom education material

Project Title:

Expansion of the Carolinas Coast Marine Weather Template within the SECOORA Region

Recipient/ Lead Principal Investigator:

University of North Carolina at Wilmington/ Jennifer Dorton (*dortonj@uncw.edu*)

Cost:

Funded: FY 2007 (Year 1) - $294,504
FY 2008 (Year 2) – $212,475

Performance:

Investigators will work with NOAA's National Weather Service (NWS) – Southern Region Headquarters and Weather Forecast Offices (WFOs) to expand the NWS's experimental Carolinas Coast marine portal (*www.weather.gov/carolinascoast*) into Florida, thereby creating a standardized Southeast Marine Weather Portal that covers the entire Southeast Coastal Ocean Observing Regional Association (SECOORA) domain. The goals of this proposal are to provide 24/7 access to critical marine information for the commercial and recreational marine communities within the SECOORA region; and, to support the transfer of the developed information technology product to WFOs with marine forecasting responsibilities. Primary objectives are : 1) expand the Carolinas Coast template into Florida; 2) provide data management capabilities to ensure 24/7 marine weather portal accessibility; 3) develop appropriate documentation and provide workshops to ensure the transfer of the marine weather portal over to the NWS; and, 4) provide outreach within the SECOORA region to inform the NWS-WFO constituents and other identified marine organizations and individuals about the improved NWS marine weather information portal.

Schedule:

1. Year 1
    - Support existing Carolinas Coast web pages and data flow
    - Expand Carolinas Coast marine weather template throughout Georgia and Florida and rename as the Southeast Marine Weather Portal (SMWP)
    - Develop hardware, software, and communications redundancy as part of the data management protocol to ensure 24/7 access (University of South Carolina and University of South Florida will each install and maintain synchronized application and database servers)

2. Years 1-2
    - Support database and product development, database architecture, and data sharing standards and protocols

3. Year 2
    - Ingest data from providers currently contributing data to the National Data Buoy Center
    - Implement documentation and training workshops for National Weather Service (NWS) Office of the Chief Information Officer personnel
    - Complete the system architecture, database management, and web interface for SMWP
    - Outreach efforts targeting marine communities in North Carolina, South Carolina, Georgia, and Florida

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NOAA Contacts:

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